

**Montana Board of Oil and Gas Conservation  
Environmental Assessment**

**Operator:** Cirque Resources LP  
**Well Name/Number:** Lucky Strike 10-4H  
**Location:** NW NW Section 10 T13N R32E  
**County:** Garfield, **MT; Field (or Wildcat)** W/C

**Air Quality**

(possible concerns)

Long drilling time: No, 15 to 25 days drilling time.

Unusually deep drilling (high horsepower rig): No, a triple drilling rig to drill to 10,405'MD/4872'TVD Heath Formation single lateral horizontal well test.

Possible H2S gas production: Slight H2S possible.

In/near Class I air quality area: No class I air quality area.

Air quality permit for flaring/venting (if productive) Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: No special concerns – using triple drilling rig to drill to 10,405'MD/4872'TVD.

**Water Quality**

(possible concerns)

Salt/oil based mud: No, surface hole will be drilled with freshwater. Mainhole will be drilled with freshwater and freshwater drilling mud.

High water table: No high water table in the area of review.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Little Breed Creek, that cuts through the northwest corner of this location.

Water well contamination: No water wells within 1 mile or further from this location.

This well will set 9 5/8" surface casing to 3725' and cement to surface. Well will be drill with oil based invert drilling mud from base of surface casing (3725') to 5116'TVD, into the Otter formation. Well will be plugged back to about 3900'. Well will be kicked off into the Heath Formation for a single lateral horizontal well test.

Porous/permeable soils: No, silty "gumbo" bentonitic soils.

Class I stream drainage: No Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☒ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: \_\_\_\_\_

Comments: If necessary reroute drainage around outside of location, since the northwest portion of this location cuts off the head of an ephemeral drainage. 3725' of surface casing cemented to surface adequate to protect freshwater zones. Also, fresh water mud system to be used on surface hole. Freshwater mud system to be used from surface to 3724'. Oil based invert drilling muds will be used from 3725' to 5116'TVD. Freshwater drilled cuttings, oil based drill cuttings and mud solids will be fly-ashed prior to burial in the lined pit. Fluids will be evaporated and/or trucked to a Class II disposal. Pit will be backfilled with at least 4' of cover. No concerns.

### **Soils/Vegetation/Land Use**

(possible concerns)

Stream crossings: No live water stream crossings. Crossing only ephemeral drainages.

High erosion potential: No, small cut, up to 7.4' and small fill, up to 7.0', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large location, 400'X310' size required.

Damage to improvements: Slight, surface use is sage-grass prairie grazing land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).

Comments: Access will be from existing county road, Old Dutton Road. Access road to be built from Old Dutton Road into location, about 7280'. Freshwater drilled cuttings, oil based drill cutting and mud solids will be solidified with fly-ash and buried in the lined pit. Lined pit will backfilled with 4' of cover when dry. Drilling fluids will be either evaporated and/or trucked to a Class II disposal. No concerns.

### **Health Hazards/Noise**

(possible concerns)

Proximity to public facilities/residences: Residences none within 1 mile or further in any direction from this location.

Possibility of H2S: Yes, possible.

Size of rig/length of drilling time: Triple derrick drilling rig, about 20 to 30 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Operational BOP and adequate surface casing should mitigate any problems. No concerns.

### Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Threatened or endangered species identified are the Pallid Sturgeon, Piping Plover, Interior Least Tern and the Black Footed Ferret.

Candidate species is the Greater Sage Grouse and Sprague's Pipit. Proposed species is the Mountain Plover. NH tracker website only lists the Greater Sage Grouse as a species of concern in T13N R32E.

Mitigation:

\_\_\_ Avoidance (topographic tolerance/exception)

\_\_\_ Other agency review (DFWP, federal agencies, DSL)

\_\_\_ Screening/fencing of pits, drillsite

\_\_\_ Other: \_\_\_\_\_

Comments: Private greasewood grass surface lands used for grazing. FWP concerns are Greater Sage Grouse habitat nearby, recommend restricting activity between March 1, 2011 to June 15, 2011.

### Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified

Mitigation

\_\_\_ avoidance (topographic tolerance, location exception)

\_\_\_ other agency review (SHPO, DSL, federal agencies)

\_\_\_ Other: \_\_\_\_\_

Comments: Private greasewood grass surface lands used for grazing. No concerns.

### Social/Economic

(possible concerns)

\_\_\_ Substantial effect on tax base

\_\_\_ Create demand for new governmental services

\_\_\_ Population increase or relocation

Comments: Well is a wildcat, until production is established no social or economic impact can be assessed.

### Remarks or Special Concerns for this site

Well is a wildcat 10,405'MD/4872'TVD Heath Formation single lateral horizontal well test.

### Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki  
(title:) Chief Field Inspector  
Date: February 22, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology GWIC website

(Name and Agency)  
Garfield County water wells  
(subject discussed)  
December 20, 2010  
(date)

US Fish and Wildlife, Region 6 website  
(Name and Agency)  
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES  
MONTANA COUNTIES, Garfield County  
(subject discussed)

December 20, 2010  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
Heritage State Rank= S1, S2, S3, T13N R32E  
(subject discussed)

December 20, 2010  
(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_